Southern Purcell Caribou Aerial Survey

Kootenay Lake District: Late Winter 1999

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Executive Summary:

An aerial survey of mountain caribou was conducted in the Goat River watershed, and in the area between the Goat River and Crawford Creek in April 1999. Five (5) animals were observed on late winter range in the goat River and one (1) was observed in Akokli Creek. Survey conditions were ideal. Originally, it was intended that the survey be replicated, however, due to delays in initiating the survey and due to the low numbers, replication was not possible.. Heavy snowmobile use in the area suggested a possible negative relationship between caribou and snowmobile use. There was minimal overlap between late winter caribou use areas and timber harvesting.

Introduction:

The mountain ecotype of woodland caribou (Rangifer tarandus caribou), occurs in the central and south-eastern parts of British Columbia. Concern for these populations and their habitat caused this ecotype to be placed on the provincial Blue List of Species at Risk.

In this survey, the animals in question occur in the Southern Interior Mountains (Ecoprovince), Columbia Mountains and Highlands (Ecoregion) in the Southern Purcell Mountains. Seasonal caribou habitat may include the Alpine tundra, Engelmann Spruce-Subalpine fir and Interior cedar-hemlock biogeoclimatic zones. In late winter, mountain caribou can move about on the packed snow and move to upper slopes and ridge tops in spruce-subalpine fir forests and parkland. Current and past descriptions of this area can be found in Stevenson and Hatler (1985), Simpson et al. (1994) and Apps and Kinley (1997).

In general, the southern Purcell Mountains' population appears to be declining (Kinley, 1998, International Caribou Workshop, Nelson, B.C.) when previous surveys and radio collar mortality rates are considered (Kinley, 1997).Prior to this flight, Kinley (1997) had observed 3 bulls and 2 unclassified caribou in Kamma Creek and only tracks in Leadville and Kidd Creeks. There were no current organized surveys in the area from the Goat River to Crawford Creek.

The purpose of this survey was to obtain an estimate of the caribou population utilizing the Goat River watershed during the late winter period. In addition, the survey was extended to include the east side of Kootenay Lake from the Goat River to Crawford Creek. (Fig. 1)

Methods:

The caribou survey used a Bell 206 Jet Ranger with three trained and experienced observers. The Goat River was flown on April 16 and the area from the Goat River to Crawford Creek was flown on April 23rd. Transects were flown above 1700 m at approximately 200 m intervals, depending upon the terrain. Multiple passes were performed in forested and partially forested subalpine basins and slopes. Flights began at about 7:00 A.M. and continued to about 2:30 P.M.. (total approximate flying time - 12 hours).

Results:

Weather conditions were ideal. The sky was clear, there was little wind and visibility was perfect. The entire area was snow covered, under 1-2 meters of snow. The snowpack began at about 1200 meters, except on south exposures, where it was higher. The potential caribou habitat is highly disjunct with only small areas of continuous habitat. Much of the area is steep and rocky.Both caribou as well as tracks were observed. All tracks were followed in order to locate animals.

The helicopter survey provided complete coverage of the available late winter habitats. Despite this only 5 caribou (3 males, 2 females) were observed in the Goat River. All animals were located above 2000 meters. The males were in Leadville Creek and the females were in Upper Kamma Creek (Table 1). Two sets of tracks led to mountain goats at or above 2000 meters. There were no other fresh tracks in the entire Goat River drainage. All tracks were accounted for and were produced by either caribou or mountain goats. During the flight from the goat River to Crawford Creek, only 1 male was observed in Akokli Creek. There were no other fresh tracks in the entire area.

Drainage	Males	Females	Calves
Leadville	3		
Kamma		2	
Akokli	1		

Table 1. Caribou Observed on Late Winter Range in the Goat River and on the East Side of Kootenay Lake up to Crawford Creek.

Discussion:

This mountain caribou survey was conducted in the Goat River to Crawford Creek area of the southern Purcell Mountains. It was intended to identify caribou population numbers and age and sex components. Since all the radio collars had been previously removed it was impossible to conduct a mark-recapture survey as originally planned. It was also intended that the survey be replicated, however, due to delays in initiating the survey and due to the low numbers, replication was not possible. Most significant is the fact that both caribou numbers and approximate locations are similar to that found by Kinley (1997).

Although the survey was conducted in April rather than March, the winter snow melt was delayed considerably. Winter conditions persisted significantly later in the year than usual. All caribou were observed above 2000 meters. There were few old tracks throughout the area.

There was an abundance of snowmobile tracks throughout the area, especially on the ridges and basins in the sub-drainages (Skelly Creek, Arrow Creek, etc.) of the west side of the Goat River and in Kidd Creek on the east side of the goat River. Coincidentally, caribou were located in areas where there were few to no snowmobile tracks. The disjunct nature of the ridges used as caribou habitat may reduce the potential for caribou use but it also restricts snowmobile use. Caribou use of high elevation, late winter habitat did not overlap timber harvest operations in this study.

Surveys of low density caribou populations in mountainous terrain are time consuming and expensive to conduct. Without replication of unmarked caribou populations or replicated mark-recapture surveys there is no variance and less opportunity to compare between year surveys. The variability of weather, caribou movements, snowmobile use, etc. confounds the ability to compare between year unreplicated surveys. The cost and time of replicating marked or unmarked low density caribou populations usually precludes the opportunity to obtain variance estimates.

In general, this survey and the previous surveys indicate low numbers of caribou in the Goat River drainage. Similarly, previous anecdotal sightings in the Goat River to Crawford Creek area, along with this survey, suggest a low density caribou population.

Conclusions and Recommendations:

Caribou habitat in the survey area is highly disjunct and appears to be localized in small units. This is consistent with the low density population and the variety of limiting factors at play (weather, predation, snowmobiles, etc.).

Thus:

1. At this point, a survey denoting the pattern and intensity of snowmobile use would be useful, in order to stratify potential caribou areas from snowmobile areas. Meetings with snowmobile clubs, groups and/or individuals at the start point of snowmobile trails (Kidd Creek, etc.) could be used to educate snowmobilers about caribou and redirect snowmobile use. An aerial survey could be conducted for $5-700..
2. There were few old caribou tracks throughout the area, commensurate with the low survey numbers and a low density population.
3. All caribou locations were at or above 2000 m.. A preliminary analysis of the annual radio-collar locations from the T. Kinley study suggested that 80% ± of the locations (unadjusted algorithms) were above the operability line (Hebert, 1998). Subsequently, readjustment of the location algorithms placed 99% ± of the annual GPS locations above 2000 m. in Buhl Creek.

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